AGENCY CERTIFICATE

NOTICE OF PROPOSED RULEMAKING

1. **Agency name:** Arizona Department of Environmental Quality

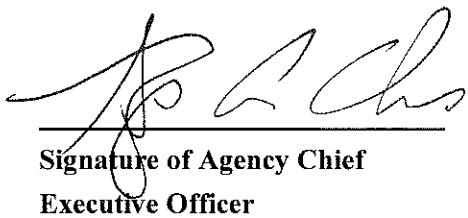
2. **Chapter heading:** Department of Environmental Quality - Air Pollution Control

3. **Code citation for the Chapter:** 18 A.A.C. 2

4. **The Subchapters, if applicable; the Articles; the Parts, if applicable; and the Sections involved in the rulemaking, listed in alphabetical and numerical order:**

Subchapters, Articles, Parts, and Sections:	**Action:**
Article 18. Clean Car Standards	
R18-2-1801	New Section
R18-2-1802	New Section
R18-2-1803	New Section
R18-2-1804	New Section
R18-2-1805	New Section
R18-2-1806	New Section
R18-2-1807	New Section
R18-2-1808	New Section
R18-2-1809	New Section
R18-2-1810	New Section
R18-2-1811	New Section
R18-2-1812	New Section
R18-2-1813	New Section

5. **The rules contained in this package are true and correct as proposed.**

6. 

Signature of Agency Chief Executive Officer

1/9/08

Date of signing

Stephen A. Owens

Printed or typed name of signer

Director

Title of signer

NOTICE OF PROPOSED RULEMAKING

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY -

AIR POLLUTION CONTROL

PREAMBLE

1.	**Sections Affected**	**Rulemaking Action**
	Article 18	New Article
	R18-2-1801	New Section
	R18-2-1802	New Section
	R18-2-1803	New Section
	R18-2-1804	New Section
	R18-2-1805	New Section
	R18-2-1806	New Section
	R18-2-1807	New Section
	R18-2-1808	New Section
	R18-2-1809	New Section
	R18-2-1810	New Section
	R18-2-1811	New Section
	R18-2-1812	New Section
	R18-2-1813	New Section

2. The statutory authority for the rulemaking, including both the authorizing statute (general) and the statutes the rules are implementing (specific):

Authorizing Statutes: A.R.S. §§ 49-104(A)(1), (A)(10) and (B)(4), 49-425; 42 U.S.C. §§ 7521(b), 7507; *Massachusetts v. EPA*, 127 S. Ct. 1438, 167 L. Ed. 2d 248 (April 2, 2007)

Implementing Statutes: A.R.S. §§ 49-447, 49-421(1), 28-955(D)

3. A list of all previous notices appearing in the Register addressing the rules:

Notice of Rulemaking Docket Opening:

4. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name: Steven J. Burr

Address: Arizona Department of Environmental Quality
1110 W. Washington Ave.
Phoenix, AZ 85007

Telephone: (602) 771-4251 (This number may be reached in-state by dialing 1-800-234-5677 and requesting the seven digit number.)

Fax: (602) 771-2366

5. An explanation of the rules, including the agency's reasons for initiating the rules:

Summary. ADEQ is proposing to adopt a new Article 18 to implement the California Low Emission Vehicle program in Arizona, as permitted under the Clean Air Act Sections 177 and 209.

Background. The 1970 federal Clean Air Act established tailpipe emission standards for new motor vehicles to curb emissions of carbon monoxide (CO), volatile organic compounds (VOC) and oxides of nitrogen (NOx). These standards took effect for cars and light duty trucks in 1975. Section 209(a) of the Act preempted the states from adopting their own emission standards for new vehicles but granted California authority to enact stricter standards, if the state obtained a waiver of preemption from the Environmental Protection Agency (EPA).

The 1977 federal Clean Air Act Amendments tightened the NOx standard for cars in two phases: 1977 through 1979, and 1981. The EPA revised the federal standards for light-duty trucks in 1979 and 1988, and set rules for heavier trucks in 1988. Section 177 of the Act allows other states to adopt California's standards, rather than the federal ones, while prohibiting the states from adopting their own. A state may adopt California's standards if they are identical to California's, and the state adopts these standards at

least 2 years before they become effective. Thus, in the United States there are two federally-sanctioned motor vehicle control programs: the federal program and the California program.

The 1990 Clean Air Act Amendments lowered the NOx emissions standards for vehicles starting in 1994. These standards are commonly referred to as the Tier 1 standards, and they resulted in a 40 percent reduction in tailpipe NOx emissions from the prior federal program (the federal motor vehicle control program).

In 1998, the EPA, vehicle manufactures and the Northeastern and Mid-Atlantic states forged a voluntary agreement to introduce cleaner vehicles. This was called the NLEV program and was patterned after the California program in place at that time. The first NLEVs were available in Northeast and Mid-Atlantic states beginning with model year 1999 vehicles, and the rest of the country in model year 2001. Compared with the Tier 1 standards, the NLEV program reduced NOx emissions by 50 percent for cars, and 17 percent for light trucks. In 1999, the EPA promulgated the motor vehicle Tier 2 emission standards starting with model year 2004 vehicles. The Tier 2 program further reduced the NOx emission standards by between 77 and 86 percent in cars and between 92 and 95 percent in trucks, compared with the NLEV program. The Tier 2 program also gave a manufacturer the flexibility to average emission reductions across its fleet to meet the emission standards. Vehicles sold in any state that has not adopted the California program must meet the Tier 2 standards.

In 1991 the California Air Resources Board (CARB) adopted its Low Emission Vehicles (LEV) program, which applied to model year 1994 through 2003 passenger cars, light-duty trucks, and medium-duty vehicles. For each model year, a manufacturer could choose how many of each type of LEV to manufacture, provided that the manufacturer's entire fleet of vehicles met a specific fleet average non-methane organic gas (NMOG) emissions level. The program also required each manufacturer to include in its fleet of vehicles a certain percentage of Zero Emission Vehicles (ZEVs) starting in 1998.

In 1998, CARB amended the LEV program to tighten and extend the NMOG fleet average to heavier sport utility vehicles and light trucks, and to provide more flexibility in meeting the ZEV requirement by creating Partial Zero Emission Vehicle (PZEV) credits for passenger cars and light-duty trucks that achieve near zero emissions, and passenger cars and light-duty trucks using advanced technologies. Advanced technology PZEVs are known as ATPZEVs. To achieve compliance with the ZEV sales mandate, manufacturers could use credits earned from the sale of PZEVs or ATPZEVs.

In addition to these strict standards limiting criteria pollutants, growing public concern over observed increases in temperature and extreme weather events, and increasing scientific consensus on their cause, prompted the California Assembly to develop AB 1493. This legislation, signed into law on July 22, 2002, by Governor Gray Davis, directed CARB to develop regulations to achieve the maximum feasible reduction in GHGs from vehicles. These regulations, called the Pavley standards after the legislative sponsor, set a declining fleetwide average for GHGs beginning with model year 2009 and established a flexible compliance scheme with credit banking and trading. The full Board approved the regulations September 24, 2004, and applied to the US EPA for a waiver in December 2005. A full discussion of greenhouse gases (GHGs) sources and impacts in included in Section C.

In 2005, CARB added a greenhouse gas fleet average emission requirement similar to the NMOG requirement. EPA found that this new standard did not fall within the scope of California's original Clean Air Act Section 209 waiver, thus requiring California to submit a separate waiver request specifically for this new greenhouse gas requirement. The EPA Administrator denied this waiver request in a December 19, 2007, letter to Governor Schwarzenegger. California filed a petition for review against EPA on January 2, 2008, in the Ninth Circuit Court of Appeals to overturn this decision. Fifteen states, including Arizona, and five nonprofit organizations have filed motions to intervene in support of California's petition. It is also possible that Congress will amend the Clean Air Act to reverse EPA's decision.

Twelve other states have adopted the California program: Connecticut (Conn. Admin. Code § 22a-174-36a), Maine (06 Code of Maine Rules § 127), Maryland (Code of Md. Regs. § 26.11.34), Massachusetts (310 Code of Mass. Regs. 7.40), New York (6 NY Code, Rules & Regs., Part 218), New Jersey (NJ Admin. Code §§ 7:27-29), New Mexico (20 NM Admin. Code, Chapter 2, Part 88), Oregon (Or. Admin. Rules § 340-257), Pennsylvania (25 Penn. Code § 126.411, Subpart D), Rhode Island (RI Air Poll. Ctrl Reg. 37), Vermont (Vt Air Poll. Ctrl Regs., Subchapter XI) and Washington (Wash. Admin. Code § 173.423). Colorado, Florida and Utah also have announced their intention to adopt the California standards.

In response to growing concerns over the issue of greenhouse gases and their effect on climate change, Governor Napolitano established the Arizona Climate Change Advisory Group (CCAG) to develop recommendations for reducing greenhouse gas emissions in Arizona. The CCAG unanimously

recommended adoption of the California standards in Arizona. In September 2006, in response to the CCAG's recommendations, the Governor signed Executive Order 2006-13. Among other actions, the Order directed ADEQ to adopt and implement the California Clean Car Program to reduce greenhouse gas emissions from passenger vehicles.

Section by Section explanation of proposed rules:

Article 18

R18-2-1801	This section lists the definitions applicable to Article 18, and includes, in the root paragraph, definitions from A.R.S. § 49-401.01 and the applicable definitions from Title 13 of the California Code of Regulations (CCR), incorporated in R18-2-1803. Of particular note, this section defines a "new vehicle" as any vehicle with 7,500 or fewer miles on its odometer.
R18-2-1802	This section details the applicability of the rules of Article 18, from general requirements to more specific applicability of certain sections of the Article to particular entities. All persons, other than those excepted in subsection (E), require CARB certification in order to deliver for sale, offer for sale, sell, import, deliver, purchase, rent, lease, acquire, receive, or register on or after January 1, 2011, a new vehicle with a model year of 2011 or later.
R18-2-1803	This section incorporates by reference the applicable sections of the California Code of Regulations necessary to implement the rules of this Article.
R18-2-1804	This section establishes the Non-methane Organic Gas (NMOG) fleet-wide average exhaust emission, a weighted average of the emissions for all of the passenger cars and light-duty trucks a manufacturer delivers for sale during the specified model year, beginning in model year 2011. Each manufacturer would be required to demonstrate that all of its passenger cars and light-duty trucks delivered for sale in Arizona on or after January 1, 2011, meet an average emission standard for NMOG, as detailed in CCR, Title 13, section 1961, incorporated in R18-2-1803.
R18-2-1805	This section establishes the Greenhouse Gas (GHG) fleet-wide average exhaust emission standards, similar to the NMOG fleet average requirements detailed in R18-2-1804. Each manufacturer would be required to demonstrate that all of its passenger cars and light-duty trucks delivered for sale in Arizona on or after

	January 1, 2011, meet an average emission standard for GHG, as detailed in CCR, Title 13, section 1961.1, incorporated in R18-2-1803. In light of the EPA decision denying California's request for a section 209(b) waiver for the GHG standards and the possibility that the federal courts or Congress will reverse the decision, this section conditions adoption of the GHG standards on such a reversal.
R18-2-1806	This section would require each manufacturer to comply with a ZEV sales requirement identical to California's. (See CCR, Title 13, section 1962, incorporated in R18-2-1803.) The ZEV sales requirement would be based on total vehicle sales in Arizona, and would commence with model year 2011 passenger cars and light-duty trucks produced and delivered for sale in Arizona on or after January 1, 2011. The ZEV sales requirement allows manufacturers to choose between two compliance paths. The conventional path requires the manufacturer to place in service (that is, to sell to an ultimate purchaser) in Arizona a certain number of ZEVs, which number is based upon the number of passenger vehicles and light-duty trucks that the manufacturer delivers for sale in the State. The second or "alternative compliance" path allows manufacturers to meet the entire ZEV mandate with a combination of ZEVs, ATPZEVs and PZEVs.
R18-2-1807	This section would establish a ZEV Credit Bank, which would allow a manufacturer to earn and bank vehicle equivalent credits for any ZEV, ATPZEV or PZEV it delivers for sale in Arizona on or after January 1, 1999. The manufacturer may use its credits at a later date to comply with the ZEV sales requirement detailed in R18-2-1808. The proposed ZEV Credit Bank would allow a manufacturer to bank, acquire from another manufacturer, and use credits in the same manner as the California program.
R18-2-1808	This section details manufacturers' reporting requirements in addition to those established in other sections of this Article.
R18-2-1809	This section applies California's emissions warranty requirements for new Low Emission Vehicles, which are incorporated by reference in R18-2-1803. The warranty requirements would apply to all passenger cars and light-duty trucks for which the manufacturer is claiming early ZEV credits, and to all qualifying vehicles delivered for sale in Arizona on or after January 1, 2011.

R18-2-1810 This section would make any enforcement action resulting in a recall of any vehicles in California prima facie evidence of noncompliance for applicable vehicles registered in Arizona, and extend such recall campaigns to Arizona-registered vehicles, unless the manufacturer can demonstrate that the recall would not be applicable in Arizona.

R18-2-1811 This section would allow the Department to inspect vehicles and records, and require documentation from appropriate parties to determine compliance and help facilitate enforcement of the rules of this Article.

R18-2-1812 Arizona new car dealers maintained in informal comments that compliance with the NMOG and GHG fleet average requirements would require manufacturers to reduce the number of larger, less fuel-efficient vehicle models shipped to Arizona. Under California's rules, however, California-certified vehicles shipped to a neighboring state that is not subject to the Clean Car Standards and sold to Arizona residents will *not* count in determining compliance with the fleet average standards. Thus, the sale of new vehicles to Arizona residents in border states could result in circumvention of the fleet average restrictions. In addition, the lack of fleet average restrictions on shipments of new vehicles to non-compliant border states could place Arizona dealers at a competitive disadvantage. In order to avoid these problems, this section requires that new car dealers in Arizona make all sales of new vehicles to ultimate purchasers in Arizona. The proposed definition of "delivered for sale" represents an alternative means of accomplishing this goal. The Department specifically seeks comment on these alternatives and whether either one should be included in the final rule.

R18-2-1813 This section clarifies how the Department's civil enforcement authority under A.R.S. § 49-463 applies to violations of the Article.

6. A reference to any study relevant to the rules that the agency reviewed and either relied on in its evaluation of or justification for the rules or did not rely on in its evaluation of or justification for the rules, where the public may obtain or review each study, all data underlying each study, and any analysis of each study and other supporting material:

Arizona Climate Change Advisory Group, "Climate Action Plan," August 2006

Arizona Department of Economic Security, "Arizona Population Projections 2006-2055," March 31, 2006

J. Baumann and E. Ridlington, “Cars and Global Warming: How the Clean Cars Program Curbs Global Warming Pollution in Oregon,” OSPIRG Foundation, October 2005

California Air Resources Board (CARB), “Addendum Presenting and Describing Revisions to: Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gas Emissions form Motor Vehicles,” September 10, 2004

CARB, Fact Sheet, “Climate Change Emission Control Regulations,” December 10, 2004

CARB, “Technical Assessment: Comparison of Greenhouse Gas Reductions Under CAFÉ Standards and ARB Regulations Adopted Pursuant to ARB1493,” January 2, 2008

CARB, “Technical Support Document for Staff Proposal Regarding Reductions of Greenhouse Gas Emissions from Motor Vehicles: Economic Impacts of the Climate Change Regulations,” August 6, 2004

“Carbon Dioxide Emissions Linked to Human Mortality,” *Science Daily*, January 4, 2008, accepted for publication in December 2007 in *Geophysical Research Letters*

Center for Climate Change Strategies, *Completed and Pending Policy Option Descriptions*, prepared for June 22, 2006 meeting of Arizona Climate Change Advisory Group, as cited in Ridlington, E., and R. Sargent, “The Clean Cars Program: How States Are Driving Cuts in Global Warming Pollution,” U.S. PIRG Education Fund, May 2007, www.uspirg.org

Center for Climate Change Strategies, “Final Arizona Greenhouse Gas Inventory and Reference Case Projections, 1990-2020,” approved March 2006, as cited in E. Ridlington and R. Sargent, “The Clean Cars Program: How States Are Driving Cuts in Global Warming Pollution,” U.S. PIRG Education Fund, May 2007, www.uspirg.org

Arizona Climate Change Advisory Group (CCAG), “Climate Change Action Plan,” August 2006

"Climate change drying up Western Rockies," Reuters, December 12, 2007

G. Garfin, "Southwest drought regimes might worsen with climate change," *Southwest Climate Outlook*, April 2007

G. Garfin and M. Lenart, "Effects on Southwest Water Resources," *Southwest Hydrology*, January/February 2007, 16-17, 34

S. Guhatahakurta and P. Gober, "The Impact of Phoenix Urban Heat Island on Residential Water Use," *Journal of the American Planning Association*, vol. 73, issue 3, 317-329, September 2007

M. Hall and D. Fagre, "Modeled Climate-Initiated Glacier Change in Glacier National Park, 1850-2100," *Bioscience* 53:131-40, 2003

Intergovernmental Panel on Climate Change [IPCC] Working Group 1, "The Physical Science Basis," February 2007

M. Kumar, "In Brief: Islands uncovered by melting polar ice," *Eos Trans.*, vol. 88, No. 36, 350, 2007

Shaun McKinnon and Andrew Long, "Arizona, other states want to get tough on Auto Emissions," *The Arizona Republic*

Northeast States Center for Clean Air Future (NESCCAF), "Reducing Greenhouse Gas Emissions from Light Duty Motor Vehicles," September 2004

P. Orszag, "Approaches to Reducing Carbon Dioxide Emissions," Congressional Budget Office Testimony, November 1, 2007

"Red Cross says global warming caused record disasters in 2007," AFP and Yahoo News, December 12, 2007

N Stern, “Stern Review on the Economics of Climate Change,” 30 October 2006.

“Southwest Climate Outlook,” April 2007

State of Rhode Island Department of Environmental Management Office of Air Resources, “Proposed Amendments to Air Pollution Control Regulation No. 37, entitled ‘Rhode Island’s Low Emission Vehicle Program,’” October 31, 2005

U.S. Census Bureau, Population Division, December 22, 2006

U.S. Government Accountability Office, “Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades Are Potentially Significant,” Report to the Committee on Homeland Security and Government Affairs, U.S. Senate, March 2007

A.L. Westerling, H.G. Hidalgo, D.R. Cayan, T.W. Swetnam, “Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity,” *Science*, volume 313, August 2006

C. Witherspoon, “Regulations to Control Greenhouse Gas Emissions from Motor Vehicles,” presentation to STAPPLA/ALAPCO Fall Membership Meeting, October 23-27, 2004

7. A showing of good cause why the rules are necessary to promote a statewide interest if the rules will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

8. The preliminary summary of the economic, small business, and consumer impact:

A. Rule Identification

This proposed rule comprises new Article 18, Sections R18-2-1801 through R18-2-1813, entitled “Clean Car Standards.” The rule implements the California Low Emissions Vehicle (LEV) program in Arizona instead of requiring compliance with current federal standards.

In a state that does not adopt California's program, new vehicles must meet "Tier 2" standards promulgated by EPA in 1999. These standards apply to vehicles with a model year of 2004 or later.[1]

B. Executive Summary

ADEQ expects the Clean Car Standards to reduce greenhouse gas (GHG) emissions, as well as emissions of non-methane organic gases (NMOG), carbon monoxide and nitrogen oxides (NO_x), from light- and medium-duty passenger vehicles and light-duty trucks. ADEQ is proposing that these rules will apply to vehicles beginning with the 2011 model year.

Executive Order 2006-13 on climate change issued in 2006 by Governor Janet Napolitano required ADEQ to develop rules to implement new GHG reduction standards in the state. The overall goals are to reduce Arizona's GHG emissions to the year 2000 level by 2020, and to reduce the 2000 year level by one-half by 2040. The Order specifically directed adoption of the California Clean Car Standards.

The Clean Car Standards establish limits on emissions from the operation of new passenger cars, light-duty trucks and medium-duty passenger vehicles. No dealer or other person within Arizona shall deliver for sale, offer for sale, sell, import, deliver, purchase, rent, lease, acquire, receive or register on or after January 1, 2011, a new 2011 or subsequent model-year passenger car, light-duty truck, medium-duty vehicle or medium-duty passenger vehicle unless the vehicle has been "California certified." A new vehicle is defined as any vehicle with 7,500 miles or fewer on its odometer, provided that a vehicle sold by a dealer is a new vehicle if it had 7,500 miles or fewer on its odometer statement at the time the dealer acquired the vehicle.

ADEQ expects this rulemaking to impact the following entities: motor vehicle manufacturers, auto dealers, individuals selling vehicles, consumers purchasing these vehicles, gasoline stations, gasoline distributors, fuel producers, businesses selling goods and services, consultants, vendors, repair facilities, general public, insurance sector, Arizona Department of Revenue and ADEQ.

As the standards are phased in, consumers should expect to pay higher prices for vehicles subject to this rulemaking. However, two major countervailing points are significant: (1) because of the potential for

reduced operating costs of these vehicles, savings are expected to outweigh the higher prices of these vehicles and (2) reduced operating costs will result in expenditures for other goods and services in the economy. In the event that some sectors of the economy could face negative economic impacts, such as fuel producers, distributors and retailers, the reduction in economic output should be more than offset in terms of employment in other sectors of the economy, as well as growth of personal income (CARB, "Technical Support Document for Staff Proposal Regarding Reductions of Greenhouse Gas Emissions from Motor Vehicles: Economic Impacts of the Climate Change Regulations," August 6, 2004).

ADEQ expects this rulemaking to provide public health and environmental benefits as well.

C. Background

These proposed rules were developed under Executive Order 2006-13 on climate change issued in 2006 by Governor Janet Napolitano. The Arizona Climate Change Advisory Group unanimously recommended that Arizona staff implement new GHG reduction standards. If nothing is done to reduce GHG emissions, emissions in Arizona are expected to increase by 148% 1990 levels in 2020, the highest projected growth rate in the nation. (Arizona Climate Change Advisory Group, "Climate Action Plan," August 2006, 4). The transportation sector contributed to 39% of Arizona's 2000 GHG emissions, and will continue to contribute significantly with increases in population and vehicle miles traveled.

Managing and reducing GHGs from the transportation sector is crucial to Arizona's climate change mitigation and adaptation strategy. Energy from the sun drives the earth's climate. It is maintained by complex interactions between the atmosphere, the oceans, and the reflectivity of the earth's surface. As the sun's rays reach the earth, the energy is either reflected back into space or it is absorbed by the earth and subsequently reemitted into the atmosphere. Certain substances—in particular carbon dioxide, methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons, and sulfur hexafluoride—trap the sun's heat in their bonds. Through a property called radiative forcing, this heat is maintained within the upper atmosphere and causes a warming effect in the atmosphere, the so-called "greenhouse effect." (IPCC Working Group I, "The Physical Science Basis," 131).

Significant scientific consensus and robust data support the claim that substantial increases in atmospheric concentrations of GHGs are significant contributors to observed increases in temperature and changes in

climate. IPCC reports that concentrations of CO2 have increased from a pre-industrial value of 280 ppm to 379 ppm in 2005. (IPCC Working Group I, "The Physical Science Basis," 131). In terms of CO2 equivalence, this is equal to 430 ppm (Sir Nicholas Stern, Economics of Climate Change Executive Summary, iii). Greenhouse gas concentrations have increased 53% from pre-industrial levels, a rise that is highly correlated with observed changes in temperature and extreme weather events. Since 1750, it is extremely likely (a 95% Confidence Interval) that humans have exerted a substantial warming influence on climate (IPCC Working Group I, "The Physical Science Basis").

Average global temperatures have increased in the last 100 years and are expected to continue to rise over the next century. Scientific assessments anticipate warmer temperatures that will alter the frequency or severity of damaging weather-related events, such as flooding and drought (U.S. Government Accountability Office, "Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades Are Potentially Significant," Report to the Committee on Homeland Security and Government Affairs, U.S. Senate, March 2007, pp.8-9).

The situation is particularly grave for Arizona, with its diverse ecosystems and exploding population growth. Researchers at the University of Arizona have documented the following: less winter snowfall, increased winter rainfall, and earlier snow melt resulting in reduced stream flow and more extensive/stronger forest fires (G. Garfin and M. Lenart, "Effects on Southwest Water Resources," *Southwest Hydrology*, January/February 2007, 16-17, 34; A.L. Westerling, H.G. Hidalgo, D.R. Cayan, T.W. Swetnam, "Warming and Earlier Spring Increase Western U.S. Forest Wildfire Activity" *Science*, volume 313, August 2006, 940-943;). Higher temperatures would speed up evaporation, lower reservoirs, slow groundwater recharge, concentrate water pollutant levels, and increase salinity (G. Garfin, "Southwest drought regimes might worsen with climate change," *Southwest Climate Outlook*, April 2007, 11; Climate Change Advisory Group [CCAG], "Climate Change Action Plan," August 2006, 27).
In addition, higher temperatures increase water consumption. Researchers at Arizona State University have shown that a one degree Fahrenheit increase in daily low temperature results in an additional 290 gallons of water consumed per day. (S. Guhatahakurta and P. Gober, "The Impact of Phoenix Urban Heat Island on Residential Water Use," *Journal of the American Planning Association*, vol. 73, issue 3, 317-329, September 2007)

As documented below, global warming is expected to cause more smog, more frequent and extensive fires, more heat waves, stronger storms, more flooding, earlier snow melts, rising sea levels and reduced

stream flows. These effects will in turn result in a significant increase in insured losses. The general public is concerned about the negative impacts that global warming has on the environment and public health. Examples of global warming are illustrated below.

The negative effects of climate change are not limited to Arizona and surrounding regions. Higher temperatures make ocean waters warmer as well, expanding the volume of water and increasing ice melt. The risk is especially pronounced in polar regions. IPCC states that it "is *likely* that anthropogenic forcing has contributed to the general warming observed in the upper several hundred meters of the ocean during the latter half of the 20th century. Anthropogenic forcing, resulting in thermal expansion from ocean warming and glacier mass loss, has *very likely* contributed to sea level rise during the latter half of the 20th century." (Intergovernmental Panel on Climate Change [IPCC] Working Group I, "The Physical Science Basis," February 2007, 665)

IPCC has documented "nearly worldwide" reduction in glacier and small ice cap mass and extent. In addition, significant warming has occurred in the Antarctic Peninsula, where progressive breakup of ice shelves has occurred over the past twenty years, culminating in the breakup of the 3,250 square kilometer Larsen-B ice shelf in 2002(IPCC Working Group 1, "The Physical Science Basis," February 2007, 317). Recent studies may indicate that the loss of sea ice is accelerating faster than the IPCC predicted (M. Kumar, "In Brief: Islands uncovered by melting polar ice," *Eos Trans*., vol. 88, No. 36, 350, 2007).

At an American Geophysical Union (AGU) conference, Tim Barnett, a researcher at the Scripps Institution of Oceanography in California, stated that snow accumulation in the Western U.S. has decreased an average of 20 percent between 1950 and 1999. Although one-quarter of the decrease may be explained by natural temperature variation, the remainder is due to human activity ("Climate change drying up Western Rockies," Reuters, December 12, 2007). A study sponsored by the U.S. Geological Survey found that climate change may cause the disappearance of the glaciers in Glacier National Park in Montana by as early as 2030 (M. Hall and D. Fagre, "Modeled Climate-Initiated Glacier Change in Glacier National Park, 1850-2100," *Bioscience* 53:131-40, 2003).

The IPCC has also found that, in the areas studied over the past fifty years, the frequency of extreme weather events like heavy precipitation, drought, and tropical storms and hurricanes, has increased, though to varying degrees across regions. Since 1970, the number of category 4 and 5 hurricanes has increased about 75 percent (IPCC Working Group 1, "The Physical Science Basis," February 2007, 308).

Further increases in the earth's temperature are very likely to increase the frequency and severity of many damaging weather-related events, such as increased drought across many regions of the globe, including the Great Plains of the U.S. In addition, the intensity of precipitation events is very likely to increase across almost all regions of the world. It is likely that the future holds increased summer drying and associated risks of drought, increased hurricane peak wind intensities and increased hurricane average and peak precipitation intensities (U.S. Government Accountability Office, "Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades Are Potentially Significant," Report to the Committee on Homeland Security and Government Affairs, U.S. Senate, March 2007, pp.11-12).

There has been a 15-fold increase in insured losses (over $1 billion in damages) from catastrophic weather-related events (e.g., Hurricane Katrina) in the past three decades. Even though an individual event, such as a hurricane, cannot be attributed to global warming, rising global temperatures in the near future are likely to cause significant increases in severe weather-related events, such as hurricanes, floods, droughts, hailstorms, wildfires, and heat waves ("New Report Warns of Rising Threat to Industry from Climate Change," *Insurance Journal*, September 9, 2005).

GHG emissions increased nearly 57 percent in Arizona between 1990 and 2005, compared to 22 percent for the entire U.S. (CCAG, "Arizona Climate Change Action Plan," August 2006). It is estimated that at least 40 percent of the GHG emissions were from vehicles. Carbon dioxide was the dominant gas emitted.[2] During this same time period, Arizona's population grew 65 percent. Maricopa County's population increased by nearly 72 percent and Pima County's population grew by more than 43 percent.

With the incorporation of global warming pollution standards, it is expected that the projected carbon dioxide emissions from light-duty vehicles in Arizona will be reduced from 34.1 million metric tons to 28.5 million metric tons by 2020, or a 16.4 percent reduction (Center for Climate Change Strategies, "Completed and Pending Policy Option Descriptions," prepared for June 22, 2006 meeting of Arizona Climate Change Advisory Group, and "Final Arizona Greenhouse Gas Inventory and Reference Case Projections, 1990-2020," approved March 2006).

These standards will force automakers to manufacture vehicles that emit 30 percent less GHG by 2016. In the twelve states, besides California, that have adopted the California GHG standards, those standards are projected to result a GHG emission reduction that is 59 percent greater than will be achieved by the

recently passed amendments to the federal Corporate Average Fuel Economy (CAFE) standards (CARB, "Technical Assessment: Comparison of Greenhouse Gas Reductions Under CAFE Standards and ARB Regulations Adopted Pursuant to ARB1493," January 2, 2008).

Arizona's program consists of three parts: (1) Low-Emission Vehicle (LEV) standards for emissions of smog-forming and toxic pollutants; (2) Zero-Emission Vehicle (ZEV) standards that promote advanced technology vehicles (e.g., hybrids, fuel-cell vehicles, and electric vehicles); and (3) GHG emission standards that limit emissions of pollutants that contribute to global warming. As noted elsewhere in this preamble, EPA has issued a notice of disapproval of California's request for a waiver under section 209(b) of the Clean Air Act for the GHG emission standards. The costs and benefits of the GHG emission standards, as described below, are contingent on a reversal of EPA's decision.

D. Class of Persons Directly Affected

ADEQ expects this rulemaking to impact the following entities: motor vehicle manufacturers, auto dealers (franchise auto dealers for new car sales and independent auto dealers for used car sales, including vehicle auctions), individuals selling vehicles, purchasers of vehicles regulated by Article 18 (consumers), gasoline stations, gasoline distributors (sales and services), fuel producers (petroleum refineries), businesses selling goods and services, consultants, vendors, repair facilities, general public, ADEQ and Arizona Department of Revenue. Political subdivisions of the state and other entities that purchase these vehicles fall under the general category of "purchasers."

E. Cost-Benefit Analysis (potential direct impacts)

This section provides a preliminary assessment of potential costs and benefits of implementing this rulemaking. ADEQ expects to provide additional information and data in the final economic analysis. ADEQ requests information and data regarding potential costs and benefits of implementing this rulemaking.

1. Health and Environmental Impacts

The GHG emission standards will aid in the reduction of regional and global impacts of GHGs and other harmful pollutants. Scientific evidence indicates that anthropogenic activities are accelerating the warming of the atmosphere by adding significant quantities of carbon dioxide and other GHGs. Examples have previously been included in the "Background" section.

In addition, ADEQ expects real air quality improvements that will benefit both public health and the environment from the other requirements of the Clean Car Standards. As a result of those standards, new vehicles will emit lower emissions of ozone-forming pollutants and cancer-causing hazardous air pollutants.

Stricter standards have the potential to reduce premature mortality and morbidity incidents among the general population. Arizona is projected to have a 2011 population of 7,186,070. By 2020, the state's population is expected to grow to 8.8 million; 11.7 million by 2040 (Arizona Department of Economic Security, "Arizona Population Projections 2006-2055," March 31, 2006). Sensitive subpopulations of the state are more vulnerable to air pollution so that greater benefits from stricter standards may accrue to them. Subpopulations include: infants and elderly, as well as persons with preexisting lung diseases (e.g., cardiopulmonary diseases and asthma), congenital defects and impaired nutritional state.

Asthma is a chronic inflammatory disorder of the airways. According to Arizona Department of Health Services, 8.9 percent of the state's population suffered from breathing discomfort or asthma (1998). However, at that time, the population of the state was just over 3.5 million. If that same rate is relevant today, by 2011 more than 639,000 persons would be classified as having a breathing disorder or asthma.

Although ADEQ expects benefits to outweigh the costs of this rulemaking, it cannot monetize potential health benefits to the general public at this time. Logically, if stricter standards can lessen vehicle emissions, a positive impact to public health could occur from the reduction of air pollutants. Air pollution can cause adverse health effects or exasperate preexisting health conditions that can impose hundreds of thousands of annual costs in terms of health care expenditures, pain and suffering, as well as reducing the quality of life and economic security of Arizona's population.

A recent study for the first time discovered a direct link between increased levels of carbon dioxide in the atmosphere and increases in human mortality. The conclusion is that for each increase of one degree

Celsius caused by carbon dioxide, the resulting air pollution would lead to about 1,000 additional deaths annually, as well as many more cases of respiratory illness and asthma in the U.S. The author, Mark Jacobson, professor of civil and environmental engineering at Stanford University, CA, said: "The study is the first specifically to isolate carbon dioxide's effect from that of other global-warming agents and to find quantitatively that chemical and meteorological changes due to carbon dioxide itself increase mortality due to increased ozone, particles and carcinogens in the air" ("Carbon Dioxide Emissions Linked to Human Mortality," *Science Daily*, January 4, 2008, accepted for publication in December 2007 in *Geophysical Research Letters*).

2. Consumer Impacts

These rules will make it illegal to register, lease or rent for use in Arizona new 2011 or later model year vehicles that are not certified to California standards. The cost of these certified vehicles will increase to pay for the modifications to the vehicle emissions control systems, drive trains and other technologies that will be necessary to meet Clean Car Standards. The higher prices for new vehicles are expected to be passed on to consumers.

ADEQ, however, anticipates that net saving will accrue to consumers from reduced vehicles operating costs. Thus, ADEQ expects that the implementation of this rulemaking will provide cost-saving benefits to consumers in terms of reduced operating costs from reduced fuel costs at the pump, more clean vehicles from which consumers may choose and the potential for better warranties.

Even though the proposed standards are emission standards, and not designed to regulate fuel economy standards, the use of advanced technologies to meet both the GHG emission standards and other requirements, such as the fleet NMOG limits and the ZEV mandates, is expected to decrease fuel consumption and operating expenses over the life of these "California certified" vehicles.

Reduced gasoline consumption leads to reduced GHG emissions and translates into cost-saving benefits for consumers and the general public. ADEQ anticipates that the increased costs of vehicle prices would be recouped over time by consumers due to reduced fuel and maintenance expenses. According to the OSPIRG Foundation, once Oregon's program is fully implemented in 2016, consumers are projected to save at least $3-$7 per month due to reduced vehicle operating costs (J. Baumann and E. Ridlington,

"Cars and Global Warming: How the Clean Cars Program Curbs Global Warming Pollution in Oregon," October 2005, pp. 5, 20).[3] However, based on current gasoline prices, actual savings are expected to be greater. The calculation was based on a gallon of gasoline costing $1.74, compared to the current price of around $3.00 per gallon.

The saving of $3-$7 per month was calculated as follows. The increased price of the vehicles would result in increased monthly loan payments of $20 for passenger cars and light trucks ($1,064 increase in cost) and $19 for the heavier of the light trucks ($1,029 increase in cost). However, considering decreased monthly operating costs of $23 for passenger cars and $26 for the heavier of the light trucks, results in monthly net savings of $3 and $7, respectively. After the loan is paid, a consumer will save the full $23 or $26 per month, which equates to $276 and $312 annually. Vehicle purchasers who pay for the vehicle in cash would experience greater savings (C. Witherspoon, "Regulations to Control Greenhouse Gas Emissions from Motor Vehicles," presentation to STAPPLA/ALAPCO Fall Membership Meeting, October 23-27, 2004). The state of Rhode Island, for example, calculated the net savings to consumers that purchase a new vehicle be $170 annually at a gasoline price of $2.20 per gallon during the term of a 60-month loan (State of Rhode Island Department of Environmental Management, Office of Air Resources, "Proposed Amendments to Air Pollution Control Regulation No. 37, entitled 'Rhode Island's Low Emission Vehicle Program,'" notice published October 31, 2005).

Technological changes required to achieve the emission reductions will result in modest increases in vehicle costs. CARB projected that passenger cars and light trucks would cost consumers an average of $1,064 more and heavier light-duty trucks would cost consumers about $1,029 more. Passenger cars and the light duty trucks would achieve 34 percent reduction in global warming pollution by 2016 with heavier light trucks achieving the required 25 percent reduction at that time (J. Baumann and E. Ridlington, *Cars and Global Warming: How the Clean Cars Program Curbs Global Warming Pollution in Oregon*, OSPIRG Foundation, October 2005, pp. 19-20; CARB, *Addendum Presenting and Describing Revisions to: Initial Statement of Reasons for Proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gas Emissions form Motor Vehicles*, September 10, 2004).

If vehicle operating costs are reduced for purchasers of new vehicles, and ultimately for owners of resale vehicles as well, consumers are expected to spend the net savings on additional goods and services, other than gasoline, according to their respective market basket of goods consumed each month. These

expenditures would flow through the economy with the potential to create not only job growth but an increase in personal income. The state of Washington estimated personal income in the state to increase by $28 million in 2010, $911 million in 2020, and $1.5 billion in 2030 ("Cost, Benefit, and Least Burdensome Analysis for the Proposed Low emission Vehicles, Chapter 173-423 WAC," October 2005).[4]

3. Costs of Regulation (regulated entities)

ADEQ anticipates that this proposed rule will impact the following entities: automobile manufacturers, automobile dealers, fuel producers, gasoline stations, gasoline distributors and other businesses providing goods and services to consumers.

Automobile Manufacturers:

All motor vehicle manufacturers must comply with the vehicle certification standards, fleet average emission requirements, warranty, recall and other applicable requirements of Article 18 beginning with model year 2011. For example, each motor vehicle manufacturer's NMOG fleet average emissions from passenger cars, light-duty trucks and medium-duty vehicles delivered for sale in Arizona must not exceed the fleet average NMOG exhaust emission requirement. Each automobile manufacturer will have to demonstrate that all of its vehicles meet the standards regulated under this rulemaking.[5]

If a report shows that the manufacturer has not complied with the NMOG fleet average emission standard, the manufacturer must submit a Fleet Average Remediation Report to ADEQ within 60 days. For model years 2010 through 2012, the manufacturer must submit this report, if needed, to ADEQ by March 1, 2013. If debits are accrued in all three years, the manufacturer must equalize one year of debits by the end of the 2013 model year and the remaining two years of debits by the end of the 2014 model year.

Each manufacturer also must comply with a ZEV sales requirement. The ZEV sales requirement would be based on total vehicle sales in Arizona, and would commence with model year 2011 passenger cars and light-duty trucks produced and delivered for sale in Arizona on or after January 1, 2011. The ZEV sales requirement allows manufacturers to choose between two compliance paths. The conventional path requires the manufacturer to place in service (i.e., to sell to an ultimate purchaser) in Arizona a certain number of ZEVs, which number is based upon the number of passenger vehicles and light-duty trucks

that the manufacturer delivers for sale in the State. An alternative compliance path will allow manufacturers to meet the entire ZEV mandate with a combination of ZEVs, Partial ZEVs (PZEVs) and Advanced Technology PZEVs (ATPZEVs).[12]

The rule provides flexibility to manufacturers while improving vehicles through advanced technology. It allows, for instance, manufacturers to average emissions across their entire vehicle mix, aggregate the GHG pollutants into equivalent emissions and bank and trade excess emission credits between vehicle classes and manufacturers. Manufacturers can earn and bank vehicle equivalent credits for any ZEV, ATPZEV, or PZEV it delivers for sale in Arizona on or after January 1, 1999. The credits can be used at a later time to comply with the ZEV sales requirement in R18-2-1808. Thus, a manufacturer could bank, acquire from another manufacturer and use credits in the same manner as the California program.

Examples of technology that manufacturers could use to meet the standards include: discrete variable valve lift or camless valve actuation to optimize valve operation instead of relying on fixed valve timing and lift, turbocharging to boost power and allow for engine downsizing, improved multi-speed transmissions, improved air conditioning systems that operate optimally, leak less and/or use alternative refrigerant (CARB, Fact Sheet, "Climate change Emission Control Regulations," December 10, 2004).

Manufacturers can incorporate current technology to achieve compliance with the Clean Car Standards without having to downsize or reduce vehicle weights. They should be able to offer their current mix of vehicles. According to the Northeast States Center for Clean Air Future (NESCCAF), all of the technologies needed to achieve the GHG standards currently are in production (*Reducing Greenhouse Gas Emissions from Light Duty Motor Vehicles*, September 2004). Examples include: electronic power steering, six-speed automatic transmissions, improved air conditioning systems, cylinder deactivation, and turbocharging. CARB concluded that the proposed GHG standards are expected to result in a net benefit to consumers over the life of the vehicle.

Higher prices for new vehicles regulated by this rulemaking could generate increased revenues for automobile manufacturers and dealers. But any increased revenues could be offset by increased manufacturing costs and dealer incentives. Furthermore, consumer demand may increase for less costly used vehicles that are not "California certified."

The issue of whether or not revenues would increase for manufacturers evolves around the concepts of elasticity of demand and supply and cost recovery techniques. A basic economic principle is that if the price of a good increases, the quantity demanded for that good will fall. If this holds true for "California certified" vehicles, one would expect new car sales to fall. There could be other factors in the market that could invalidate the Law of Demand. If personal income increased, for example, new car sales actually could increase over the pre-regulated market. Other factors also could cause a shift in the demand that would negate the higher costs of new vehicles. If a sufficient number of consumers thought that they could benefit from either reduced operating costs, or even the idea of mitigating GHGs (an air quality benefit), new vehicle sales might not fall at all.

Automobile Dealers:

The rule does not impose additional costs on the day-to-day cost of selling or acquiring vehicles to sell. Dealers must only buy "California certified" vehicles for their inventory. Franchise dealers must order new certified vehicles from manufacturers and they must make all sales of new vehicles to ultimate purchasers.

All dealers will need to only buy used inventory from individuals, auctions, or other dealers that also are certified. The inventory cost, however, may be higher because "California certified" vehicles are expected to cost about $1,000 more per vehicle than federally certified vehicles. The increase in the cost of new vehicles is expected to increase the cost of used vehicles in the future.

All motor vehicle dealers must comply with the sales and reporting requirements. ADEQ classifies this cost burden as minimal.

Fuel Producers, Gasoline Stations, and Gasoline Distributors:

Because the Clean Car Program has the potential to reduce petroleum consumption, the volume of gasoline produced, distributed and sold at the pump could decrease somewhat. This could have a negative impact on new sales and employment, particularly across states that have adopted California standards. In Arizona, however, this impact may be mitigated completely due to expected population growth.

Industries and employees most impacted by this rulemaking would be those engaged in the refining and distribution of gasoline and entities buying light-duty passenger vehicles. ADEQ notes that distribution, sales and service industries will be the least impacted. Due to higher priced vehicles, the quantity demanded by consumers will fall, based on the Law of Demand.[7] The state of Washington's E-DRAM simulation revealed that its proposed regulations would result in reduced economic output by $7 million in 2010, $437 million in 2020 and $835 million in 2030 ("Cost, Benefit, and Least Burdensome Analysis for the Proposed Low Emission Vehicles, Chapter 173-423 WAC," October 2005). However, due to population growth, employment growth in other industries and growth of personal income, the loss in economic output would be dwarfed with positive economic growth in other sectors of the economy or mitigated entirely.

Other Businesses Providing Goods and Services to Consumers:

Because the rule will result in the introduction of advanced technologies that reduce gasoline consumption from and maintenance costs for vehicles, ADEQ expects that the savings over the life cycle of the vehicle will outweigh the higher prices for vehicles. This surplus of savings is expected to be expended on other goods and services as the money flows through the economy. Indirect impacts could be business expansions and new business creations. Therefore, even if some sectors of the economy should experience job losses, other sectors would experience job gains.

As noted earlier, due to savings from reduced vehicle operating costs, other businesses are expected to be positively impacted as consumers increase expenditures on other goods and services. As these expenditures flow through the economy, retail sales revenues, for example, are expected to increase, which in turn could result in job expansion and creation.

4. Small Business Impacts

State statutes require agencies to reduce the impact of a rule on small businesses by using certain methods, when they are legal and feasible, in meeting the statutory objectives of the rulemaking. Under §41-1055(B)(5)(c)(i-iii), the methods that agencies may employ to reduce the impact on small businesses include the following: (1) establish less costly compliance requirements; (2) establish less costly

schedules or less stringent deadlines for compliance and (3) exempt small businesses from any or all requirements.

Under §41-1035, agencies must consider each of the methods set forth in that section and reduce the impact by using one or more, if the agency finds that the methods are legal and feasible in meeting the statutory objectives of the rulemaking. These methods include: (1) establish less stringent compliance or reporting requirements; (2) establish less stringent schedules or deadlines in the rule for compliance or reporting requirements; (3) consolidate or simplify compliance or reporting requirements; (4) establish performance standards to replace design or operational standards and (5) exempt small businesses from any or all rule requirements.

Some of the businesses impacted will be classified as small businesses. In this preliminary economic analysis, the type and number of these businesses have not been identified. Because the cost of higher priced vehicles will be offset by reduced operating costs, ADEQ does not expect that small businesses purchasing or leasing new vehicles will be negatively impacted. Other small business entities could benefit from increased revenues as consumers increase their expenditures due to reduced operating costs of vehicles. These increases in expenditures can be explained by consumers' marginal propensity to consume over the years.

Section 177 the Clean Air Act requires that states adopting the California regulations maintain identical standards and consistent programs for a given weight class of vehicles. Therefore, ADEQ cannot reduce the regulatory impact on small businesses by changing any of the substantive requirements of the Clean Car Standards.

5. Consultants, Vendors, Repair Facilities

This preliminary economic analysis has not considered the impact to consultants, vendors or repair facilities. ADEQ at this time has not identified any impacts on revenues, payrolls or employment of these business entities.

6. ADEQ

ADEQ does not expect that the vehicle emissions inspection programs in Phoenix and Tucson will be negatively impacted. All vehicles of model years 1996 and newer are tested using on-board computer diagnostic test instead of a tailpipe test that measures emissions. Implementation of the Clean Car Program will be fully consistent with the vehicle registration law that requires all vehicles of model year 1968 or newer to be equipped with emissions control devices that meet standards established by the Director [A.R.S. § 28-955(D)]. ADEQ will continue to exempt new vehicles for the first five years. When the "California certified" vehicles reach six years old, they will be tested using on-board diagnostics also. Persons registering their vehicles will not notice any changes when registering or having their vehicles tested.

Each manufacturer shall submit a report by March 1 (procedures and format set forth in CCR, section 1961) that contains the following: pre-model year data that projects fleet average NMOG exhaust emissions for vehicles expected to be delivered for sale in Arizona and end-of-year data that calculates the fleet average NMOG exhaust emissions for the model year just ended.

ADEQ anticipates an increase in personnel and the associated costs will be necessary to review and evaluate the reports required by the rule, to track compliance, and to take appropriate enforcement action.

7. State Revenue Impacts

ADEQ does not expect this rulemaking to adversely impact state revenues. Sales tax revenues could increase or decrease, depending on how new and used vehicle sales change once is the Clean Car Standards are implemented. With the anticipated increase in personal income, ADEQ expects that Arizona Department of Revenue will collect more tax revenues. With consumers anticipated to purchase additional goods and services, due to savings from reduced vehicle operating costs, sales tax revenues could increase.

8. Subdivisions of the State of Arizona

State and local governments, and other political subdivisions of the state, that own, lease or operate passenger vehicles and light trucks that are subject to this rulemaking will be required to use only "California certified" vehicles. The cost of these higher priced vehicles will be offset by reduced

operating costs. Therefore, these proposed rules will not result in any significant adverse economic impacts to political subdivisions.

9. Insurance Sector (indirect impacts)

Private and federal insurers paid about $320 billion in claims on weather-related losses (1980 through 2005). In constant dollars, private insurers paid $243.5 billion, the largest part of the claims, followed by federal crop insurance, $43.6 billion, and federal flood insurance, $34.1 billion. Although the amount of the claims generally increased during this time period, they varied significantly due to the incidence and effects of catastrophic weather events (e.g., hurricanes and droughts). The years with the largest insured losses generally were associated with major hurricanes, comprising more than one-third of all weather-related losses since 1980. Growth in population in hazard-prone areas and real estate developments have increased federal and private insurers' exposure, which helps to explain the increase in losses.

The heavily-populated areas along the Northeast, Southeast, and Texas coasts, for instance, have among the highest value of insured properties in the United States, which means these areas face the highest likelihood of major hurricane losses. Thus, because of these and other factors, federal insurers' exposures have grown substantially. Since 1980, the National Flood Insurance Program's (NFIPs) exposure has quadrupled, nearing $1 trillion, and program expansion has increased the Federal Crop Insurance Corporation's (FCICs) exposure nearly 26-fold to $44 billion. These escalating exposures to catastrophic weather events are leaving the federal government at increased financial risk. FCIC officials said that if the widespread Midwest floods of 1993 were to occur today, losses would be five times greater, or $1.3 billion vs. $6.5 billion. However, after adjusting for inflation, the cost would be $8.5 billion in 2005 dollars, which is about one-half the costs of Hurricanes Katrina and Rita in 2005, and more than four times the premiums taken in by the program annually. Even without considering the impacts of climate change, federal flood insurance is of questionable financial sustainability without major and frequent subsidies (U.S. Government Accountability Office, "Climate Change: Financial Risks to Federal and Private Insurers in Coming Decades Are Potentially Significant," Report to the Committee on Homeland Security and Government Affairs, U.S. Senate, March 2007).

10. Employment Impacts

ADEQ expects the net employment impact to be positive. California concluded that employment actually would increase in the state because money previously spent by consumers on gasoline would circulate longer within the economy which would increase employment. Even if employment in the automotive industry (i.e., manufacturing, suppliers and distribution facilities) did decline, the net effect would be an increase in overall employment and not a decline (CARB, "Technical Support Document for Staff Proposal Regarding Reductions of Greenhouse Gas Emissions from Motor Vehicles: Economic Impacts of the Climate Change Regulations," August 6, 2004).

The concern is for potential job loses if many vehicle models would not be offered for sale in California. California Air Resources Board (CARB) characterized this argument as "unrealistic and based on selective data sources." The state of Washington and other states agreed ("Concise Explanatory Statement and Responsiveness Summary," Washington State Department of Ecology, November 28, 2005, 18-19). ADEQ also expects these rules to create positive employment benefits in Arizona.

The state of Washington used the Environmental Dynamic Revenue Analysis Model (E-DRAM) simulation scaled to Washington's economy to demonstrate the impact of low emission vehicle regulations. The state's net employment impact showed an increase by over 519 jobs in 2010; 9,506 jobs in 2020; and 14,345 jobs in 2030 ("Cost, Benefit, and Least Burdensome Analysis for the Proposed Low emission Vehicles, Chapter 173-423 WAC," October 2005).

Refer to other sections of this analysis that addresses potential employment impacts to various entities.

F. Social Costs

General public, governments, insurance sector, and businesses all are at risk from escalating losses from weather-related events due to climate change caused by global warming. Losses include both the insured and the uninsured. The 15-fold increase in insured losses from catastrophic events alone has far outstripped inflation (general rise in the price level), premium increases and population growth. Climate change is very likely to increase the weather-related events so that the risk will significantly increase. Escalating losses are a direct result of increased costs to society in the form of higher premiums, lowered coverage limits and increased restrictions in coverage. State and federal governments could expect additional financial liability in response to private insurers restricting coverage and withdrawing from

markets ("New Report Warns of Rising Threat to Industry from Climate Change," *Insurance Journal*, 9/08/05).

A program that reduces GHG emissions can help reduce this risk. Therefore, reducing GHG emissions could help reduce expected future costs to society, but it also could reduce the chances of irreversible or potentially catastrophic damage (Peter R. Orszag, "Approaches to Reducing Carbon Dioxide Emissions," Congressional Budget Office Testimony, November 1, 2007).

Anthropogenic activities are accelerating the warming of the atmosphere by adding significant quantities of carbon dioxide and other GHGs. These activities have created and will continue to create negative externalities (adverse third party effects). This is the result of an inefficient market since prices, which could be distorted or absent, do not reflect true social costs and benefits from using the air to discharge these pollutants. In these cases, air is treated as a free good without internalizing potential damages caused by GHGs and other pollutants. Society bears the costs of adverse impacts to human health, property, and the environment.

G. Less Costly Alternatives

ADEQ could implement neither a less costly alternative to this rulemaking nor less costly compliance options. Federal standards are less stringent than California's standards. Requiring "California certified" vehicles is the most protective standard for human health and the environment. Since section 177 the Clean Air Act requires that a state adopting the California regulations maintain identical standards and consistent programs for a given weight class of vehicles, the only regulatory alternative to adopting GHG standards would be to revert back to less stringent federal standards that fail to address GHG emissions.

H. Endnotes

[1] Any state that does not meet one of the National Ambient Air Quality Standards may adopt California's standards under Section 177 of the Clean Air Act. This includes 36 states plus Vermont since it is part of the "ozone transport region."

[2] Ninety-five percent of vehicle exhaust consists of carbon dioxide with the remaining 5 percent containing methane, nitrous oxide, and hydroflurocarbons (leakage from air conditioning systems). If the average passenger vehicle uses 543 gallons of gasoline per year, it will emit more than 5 tons of carbon dioxide (Shaun McKinnon and Andrew Long, "Arizona, other states want to get tough on Auto Emissions," *The Arizona Republic*).

[3] The example of the savings was based on gasoline costing $1.74 per gallon (CARB, *Technical Support Document for Staff Proposal Regarding Reductions of Greenhouse Gas Emissions from Motor Vehicles: Economic Impacts of the Climate Change Regulations*, August 6, 2004). However, the average gasoline price for all grades was $2.603 per gallon as of October 24, 2005 compared to $2.032 per gallon as of October 24, 2004 (http://www.wtrg.com/gasoline/gasolineprices.html). Currently, the average price of gasoline exceeds $3.00 per gallon.

[4] The results were based on California Department of Finance's Environmental Dynamic Revenue Analysis Model (E-DRAM) simulation scaled to Washington's population.

[5] R18-2-1804 establishes non-methane organic gas (NMOG) fleet-wide average exhaust emission, a weighted average of the emissions for all of the passenger vehicles and light-duty trucks that a manufacturer delivers for sale during the specified model year, starting in 2011 (California Code of Regulations (CCR), Title 13, section 1961, incorporated in R18-2-1803). In addition, R18-2-1805 establishes the GHG fleet-wide average exhaust emission standards that are similar to the NMOG fleet average requirements (CCR 13, section 1961.1, incorporated in R18-2-1803).

[6] The requirements are established in R18-2-1806 (CCR, Title 13, section 162, incorporated in R18-2-1803). Executive Order is a document issued by CARB certifying that a specified test group or model year vehicle has met all requirements adopted by CARB under applicable sections of CCR for the control of specified air contaminants from motor vehicles so that it is certified for sale in California.

[7] The Law of Demand states that as the price of a good or service rises, the quantity demanded by consumers will fall, *ceteris paribus*.

9. The name and address of agency personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: David Lillie

Address: ADEQ, Air Quality Planning Section, 1110 West Washington, Phoenix, AZ 85007

Telephone: (602) 771-4461 (Any extension may be reached in-state by dialing 1-800-234-5677, and asking for a specific number.)

Fax: (602) 771-2366

E-mail: Lillie.David@azdeq.gov

10. The time, place, and nature of the proceedings for the making, amendment, or repeal of the rule or, if no proceeding is scheduled, where, when and how persons may request an oral proceeding on the proposed rule:

6:30 pm, March 3, 2008

Conference Room 250

1110 W. Washington St.

Phoenix, AZ 85007

Close of Comment: March 3, 2006

11. Any other matter prescribed by statute that is applicable to the specific agency or to any other specific rule or class of rules:

Not applicable

12. Incorporations by reference and their location in the rules:

Title 13 California Code of Regulations (CCR), Section 1900	R18-2-1801, R18-2-1803
Title 13 CCR, Sections 1956.8(g) and (h)	R18-2-1803
Title 13 CCR, Section 1960.1	R18-2-1801, R18-2-1803
Title 13 CCR, Section 1961	R18-2-1801, R18-2-1803, R18-2-1804, R18-2-1813
Title 13 CCR, Section 1961.1	R18-2-1801, R18-2-1803, R18-2-1805,

	R18-2-1813
Title 13 CCR, Section 1962	R18-2-1801, R18-2-1803, R18-2-1804, R18-2-1813
Title 13 CCR, Section 1962.1	R18-2-1803
Title 13 CCR, Section 1965	R18-2-1803
Title 13 CCR, Section 1968.2	R18-2-1803
Title 13 CCR, Section 1968.5	R18-2-1803
Title 13 CCR , Section 1976	R18-2-1803
Title 13 CCR, Section 1978	R18-2-1803
Title 13 CCR, Section 2035	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2037	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2038	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2039	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2040	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2046	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2109	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2111	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2112	R18-2-1803, R18-2-1810
Title 13 CCR, Appendix A to Article 2.1.	R18-2-1803
Title 13 CCR, Section 2113	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2114	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2115	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2116	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2117	R18-2-1803, R18-2-1810
Title 13 CCR Section 2118	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2119	R18-2-1803, R18-2-1810
Title 13 CCR , Section 2120	R18-2-1803, R18-2-1810

Title 13 CCR, Section 2122.	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2123	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2124	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2125	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2126	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2127	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2128	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2129	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2130	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2131	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2132	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2133	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2135	R18-2-1803, R18-2-1810
Title 13 CCR, Section 2141	R18-2-1803
Title 13 CCR, Section 2142	R18-2-1803
Title 13 CCR, Section 2143	R18-2-1803
Title 13 CCR, Section 2144	R18-2-1803, R18-2-1809
Title 13 CCR, Section 2145	R18-2-1803
Title 13 CCR, Section 2146	R18-2-1803
Title 13 CCR, Section 2147	R18-2-1803
Title 13 CCR, Section 2148	R18-2-1803
Title 13 CCR, Section 2149	R18-2-1803
Title 13 CCR , Section 2235	R18-2-1803

13. The full text of the rules follows:

TITLE 18. ENVIRONMENTAL QUALITY

CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY-

AIR POLLUTION CONTROL

ARTICLE 18. CLEAN CAR STANDARDS

Section

R18-2-1801	Definitions
R18-2-1802	Applicability
R18-2-1803	Incorporations by Reference
R18-2-1804	Fleet Average Non-Methane Organic Gas (NMOG) Exhaust Emission Requirements, Reporting, and Compliance
R18-2-1805	Fleet Average Greenhouse Gas Exhaust Emission Requirements, Reporting and Compliance
R18-2-1806	ZEV Sales Requirement
R18-2-1807	ZEV Credit Bank and Reporting
R18-2-1808	Additional Reporting Requirements
R18-2-1809	Warranty Requirements
R18-2-1810	Recalls
R18-2-1811	Inspections and Information Requests
R18-2-1812	Sales by Registered Dealers
R18-2-1813	Enforcement

ARTICLE 18. CLEAN CAR STANDARDS

R18-2-1801. Definitions

The following definitions, the definitions in R18-2-101, the definitions in A.R.S. § 49-401.01, and the definitions in CCR sections incorporated by reference, apply to this Article unless the context otherwise applies. If the same term is defined more than once, the definitions in this section, R18-2-101 and A.R.S. § 49-401.01 apply first, followed by the definitions in the CCR sections incorporated by reference in R18-2-1803.

1. "Advanced technology partial zero emission vehicle" or "ATPZEV" means advanced technology Partial Zero Emission Vehicle as defined in CCR § 1962(i).
2. "Assembled vehicle" means:
    a. A motor vehicle that has a body built to resemble and be a reproduction of another vehicle of a given year and given manufacturer;
    b. A motor vehicle that will be used for occasional transportation, exhibitions, club activities, parades, tours, testing its operation, repairs or maintenance and similar uses;
    c. A motor vehicle that will not be used for general daily transportation; or
    d. A motor vehicle that:
        i. Has a body that does not resemble any particular year model or make of vehicle;
        ii. Is not a vehicle rebuilt by a manufacturer;
        iii. Is not a vehicle built in a factory where the year model and make are assigned at the factory; and
        iv. Is not an antique vehicle, a vehicle of special interest, a reconstructed vehicle or a replica.
3. "Business" means an occupation, profession or trade; a person or partnership or corporation engaged in commerce, manufacturing, or a service; a profit-seeking enterprise or concern.
4. "California Air Resources Board" or "CARB" means the agency or its successor established and empowered to regulate sources of air pollution in the state of California, including motor vehicles.
5. "California credit balance" means the balance of credits that a manufacturer has on deposit with the California ZEV Bank on January 2, 2008.
6. "CCR" means Title 13 of the California Code of Regulations as in effect on January 1, 2008, and no future editions or amendments.

7. "Certificate of conformity" means a document issued by California Air Resources Board certifying that a specified test group or model year has met all applicable requirements adopted by CARB under the applicable sections of CCR, or by the United States EPA under the applicable sections of the Clean Air Act, for the control of specified air contaminants from motor vehicles.

8. “Collectible vehicle” means a vehicle that complies with both of the following:

   a. It is a motor vehicle that:

      i. Bears a model year date of original manufacture that is at least fifteen years old; or

      ii. Is of unique or rare design, of limited production and an object of curiosity.

   b. It is a motor vehicle that:

      i. Is maintained primarily for use in car club activities, exhibitions, parades or other functions of public interest or for a private collection and is used only infrequently for other purposes; and

      ii. Has a collectible vehicle or classic automobile insurance coverage that restricts the collectible vehicle mileage or use, or both, and requires the owner to have another vehicle for personal use.

9. “Custom Vehicle” means:

   a. A motor vehicle that:

      i. Was manufactured prior to 1949 or was manufactured to resemble a motor vehicle manufactured prior to 1949;

      ii. May be equipped with a drive train, suspension system or brake system that is different from the drive train, suspension system or brake system originally installed on the vehicle;

      iii. May have alterations to the dimensions of the original body of the vehicle; and

      iv. Is not a motorcycle or an assembled vehicle; or

   b. A motor vehicle that was manufactured to resemble a vehicle at least twenty-five (25) years old and of a model year after 1948, and:

      i. Has been altered from the manufacturer's original design; or

      ii. Has a body constructed from non-original materials.

10. "Dealer" means a person or organization licensed under A.R.S. § 28-433 by the Arizona Department of Transportation as a new motor vehicle dealer, or used motor vehicle dealer.

11. "Delivered for sale" means vehicles that have received a bill of lading for sale in Arizona and are shipped, or are in the process of being shipped, to a dealer in Arizona or that have received a bill

of lading for sale in another state and have been sold to a purchaser who subsequently registers the vehicle in Arizona while the vehicle has 7,500 miles or less on its odometer.

12. "Department" means the Arizona Department of Environmental Quality.

13. "Emergency vehicle" means any publicly owned vehicle operated by a peace officer in the performance of their duties, any authorized emergency vehicle used for fighting fires or responding to emergency fire calls and any publicly owned authorized emergency vehicle used by an emergency medical technician or paramedic or any ambulance used by a private entity under contract with a public agency.

14. "Engine family" means the basic classification unit comprised of the engine and drive train configuration selected by a manufacturer and used for the purpose of certification testing.

15. "Executive Order" means a document issued by the CARB certifying that a specified test group or model year vehicle has met all applicable requirements adopted by the CARB under the applicable sections of CCR for the control of specified air contaminants from motor vehicles and is thereby certified for sale in California.

16. “Fleet average emission requirements” means limitations on greenhouse or non-methane organic gas exhaust mass emissions from passenger cars, light-duty trucks and medium-duty passenger vehicles.

17. "Greenhouse gas" or "GHG" means the following gases: carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

18. “Greenhouse gas emission credit” means the value, earned by a manufacturer when the manufacturer’s greenhouse gas fleet average emissions are less than the required fleet average, as determined by the formula in CCR § 1961.1(b).

19. “Greenhouse gas emission debit” means the value, earned by a manufacturer when the manufacturer’s greenhouse gas fleet average emissions exceed the required fleet average, as determined by the formula in CCR § 1961.1(b).

20. “Greenhouse gas fleet average emissions” means a motor vehicle manufacturer's average vehicle emissions of greenhouse gases from passenger cars and light duty trucks in any model year subject to this regulation delivered for sale in Arizona.

21. “Greenhouse gas fleet average emission requirement” means limitations on greenhouse gas exhaust mass emissions from passenger cars, light-duty trucks and medium-duty passenger vehicles, as set forth in CCR § 1961.1.

22. “Greenhouse gas model year” or “GHG model year” is defined as follows:

a. If Congress amends federal law to allow state adoption of the GHG standards in CCR § 1961.1 and the amendment establishes an earliest model year to which the standards may apply, GHG model year means the model year established in that amendment.

b. If Congress does not adopt the amendment described in subsection (b), GHG model year means the model year commencing two years after EPA grants a waiver under section 209(b) of the Clean Air Act for the standards established by CCR § 1961.1 or after any judicial decision or amendment to federal law that has the effect of authorizing states to adopt the GHG standards in CCR § 1961.1.

23. "Gross vehicle weight rating" or "GVWR" means the value specified by the manufacturer as the maximum design loaded weight of a single vehicle.

24. “Heavy-duty vehicle” means any motor vehicle having a manufacturer's gross vehicle weight rating greater than 6,000 pounds, except passenger cars.

25. “Independent low volume manufacturer” means a manufacturer that has been designated by CARB as an independent low volume manufacturer as defined at CCR § 1900.

26. "Intermediate volume manufacturer" means a manufacturer that has been designated by CARB as an intermediate volume manufacturer as defined at CCR § 1900.

27. "Large volume manufacturer" means a manufacturer that has been designated by CARB as a large volume manufacturer as defined at CCR § 1900.

28. "Light-duty truck" means any 2000 and subsequent model year motor vehicle certified to the standards in CCR § 1961(a)(1), rated at 8,500 pounds gross vehicle weight or less, and any other motor vehicle rated at 6,000 pounds gross vehicle weight or less, which is designed primarily for purposes of transportation of property or is a derivative of such a vehicle, or is available with special features enabling off-street or off-highway operation and use.

29. "Manufacturer" means any small, intermediate, or large volume vehicle manufacturer as defined at CCR § 1900.

30. "Medium-duty passenger vehicle" means any medium-duty vehicle with a gross vehicle weight rating of less than 10,000 pounds that is designed primarily for the transportation of persons, but does not include:

a. A truck that does not have the primary load carrying device or container attached;

b. A vehicle that has a seating capacity of more than 12 persons;

c. A vehicle that is designed for more than 9 persons in seating rearward of the driver's seat; or

d. A vehicle that is equipped with an open cargo area of 72.0 inches in interior length or more. A covered box not readily accessible from the passenger compartment shall be considered an open cargo area, for purposes of this definition.

31. “Medium-duty vehicle means:

a. Any pre-1995 model year heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8,500 pounds or less;

b. Any 1992 through 2006 model-year heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in CCR § 1960.1(h)(2) having a manufacturer's gross vehicle weight rating of 14,000 pounds or less; and

c. Any 2000 and subsequent model heavy-duty low-emission, ultra-low-emission, super-ultra-low-emission or zero-emission vehicle certified to the standards in CCR § 1961(a)(1) or 1962 having a manufacturer's gross vehicle weight rating between 8,501 and 14,000 pounds.

32. "Model year" means a motor vehicle manufacturer's annual production period which includes January 1 of a calendar year or, if the manufacturer has no annual production period, the calendar year. In case any vehicle manufactured in two or more stages, the item of manufacture shall be the date of completion of the chassis.

33. "Motor vehicle" or "vehicle" means any self-propelled vehicle designed for transporting persons or property on public highways, excepting motorcycles.

34. "Motor vehicle engine" means an engine that is used to propel a motor vehicle.

35. "New motor vehicle engine" means a new engine in a motor vehicle.

36. "New vehicle" means any vehicle with 7,500 miles or fewer on its odometer, provided that a vehicle sold by a dealer is a new vehicle if it had 7,500 miles or fewer on its odometer statement at the time the dealer acquired the vehicle.

37. "Non-methane organic gas" or "NMOG" means the sum of non-oxygenated and oxygenated hydrocarbons contained in a gas sample as measured in accordance with the "California Non-Methane Organic Gas Test Procedures," as amended July 30, 2002, with no future editions or amendments, which is incorporated herein by reference and is on file with the Department.

38. “Non-methane organic gas (NMOG) emission credit” means the value, earned by a manufacturer when the manufacturer’s non-methane organic gas fleet average emissions is less than the required fleet average, as determined by the formula in CCR § 1961(c).

39. “Non-methane organic gas (NMOG) emission debit” means the value, earned by a manufacturer when the manufacturer’s non-methane organic gas fleet average emissions exceeds the required fleet average, as determined by the formula in CCR § 1961.(c).

40. “Non-methane organic gas (NMOG) fleet average emission” means a motor vehicle manufacturer's average vehicle emissions of all non-methane organic gases from passenger cars and light duty trucks in any model year subject to this regulation delivered for sale in Arizona.

41. “Non-methane organic gas (NMOG) fleet average emission requirement” means limitations on non-methane organic gas exhaust mass emissions from passenger cars, light-duty trucks and medium-duty passenger vehicles, as set forth in CCR § 1961.

42. "Partial zero emission vehicle" or "PZEV" means a vehicle that is certified as a partial zero emission vehicle under the CARB vehicle standards for the applicable model year and has received a CARB Executive Order, but shall not include an advanced technology partial zero emission vehicle or a zero emission vehicle.

43. "Passenger car" or “PC” means any motor vehicle designed primarily for transportation of individuals and having a design capacity of 12 individuals or fewer.

44. "Person" means the federal government, state, or any federal or state agency or institution, any municipality, political subdivision, public or private corporation, individual, partnership, association, or other entity, and includes any officer or governing or managing body of any municipality, political subdivision, or public or private corporation.

45. "Placed in service" means having been sold to an ultimate purchaser and not to a dealer or other distribution chain entity, and having been individually registered for on-road use by the Arizona Motor Vehicle Division.

46. “Recall” means”

    a. The issuing of notices directly to consumers that vehicles in their possession or control should be corrected, or

    b. Efforts to actively locate and correct vehicles in the possession or control of consumers.

47. "Sale" or "sell" means the transfer of equitable or legal title to a motor vehicle or motor vehicle engine to the ultimate purchaser.

48. "Small volume manufacturer" means a manufacturer that has been designated by the CARB as a small volume manufacturer as defined at CCR § 1900.

49. "State" means the state of Arizona.

50. "Test group" means a grouping of vehicles as defined by 40 CFR 86.1827-01 as of July 1 2006, incorporated herein by reference with no future editions or amendments.

51. "Test vehicle" means an experimental or prototype motor vehicle that appears to have very low emission characteristics, or a used motor vehicle within which an experimental motor vehicle pollution control device is installed, and which has also received a test vehicle or fleet permit from the CARB.

52. "Ultimate purchaser" means, with respect to any new motor vehicle or new motor vehicle engine, the first person who in good faith purchases a new motor vehicle or new motor vehicle engine for purposes other than resale.

53. "Vehicle identification number" or "VIN" means a unique, 17-digit, alphanumeric code that the vehicle manufacturer assigns to a vehicle.

54. "Zero emission vehicle" or "ZEV" means a vehicle certified as a zero emission vehicle under to the CARB zero emission vehicle standards for the applicable model year, but shall not include an advanced technology partial zero emission vehicle or a partial zero emission vehicle.

R18-2-1802. Applicability

A. Except as set forth in subsections (D) and (E), no dealer or other person within this State shall deliver for sale, offer for sale, sell, import, deliver, purchase, rent, lease, acquire, receive, or register on or after January 1, 2011, a new 2011 or subsequent model-year passenger car, light-duty truck, medium duty vehicle, or medium duty passenger vehicle unless the vehicle has been certified by the CARB and has received a CARB Executive Order.

B. All motor vehicle manufacturers shall comply with the fleet average emission requirements and the warranty, recall, and other applicable requirements of this Article.

C. All motor vehicle dealers shall comply with the sales and reporting requirements of this Article.

D. Prior to January 1, 2012, model year 2011 vehicles that do not meet the requirements of subsection (A), but were produced and delivered for sale in Arizona on or before January 1, 2011, and have a certificate of conformity issued under the Clean Air Act, may be sold, offered for sale, purchased, acquired or received in Arizona.

E. Subsection (A) shall not apply to passenger cars and light-duty trucks that are:

1. Available only for rent to a final destination in a state that is not subject to the California vehicle emissions standards;
2. Sold for registration and use in a state that is not subject to the California vehicle emission standards;
3. Purchased by Arizona residents while assigned to active military duty outside the State of Arizona;
4. Military tactical vehicles, test vehicles and emergency vehicles;

5. Acquired by a resident of Arizona for the purposes of replacing a vehicle registered to that resident, which was damaged, or became inoperative beyond reasonable repair, or was stolen while out of Arizona; provided that the replacement vehicle is acquired out of State at the time the previously registered vehicle was either damaged or became inoperative beyond reasonable repair or was stolen;
6. Transferred as a result of divorce, dissolution, legal separation, court decree, or inheritance;
7. Collectible vehicles, custom vehicles, or assembled vehicles;
8. Covered by a certificate of conformity issued under the Clean Air Act and that were originally registered in another state by a resident of that state who subsequently establishes residence in Arizona;
9. Sold for the purpose of being wrecked or dismantled under A.R.S. § 28-2094 and A.A.C. R17-203(A)(1)(d)(i);
10. Sold exclusively for off-highway use; or
11. Sold for registration out of State.

R18-2-1803. Incorporations by Reference.

The following sections of CCR, as of January 1, 2008, and no future editions or amendments, are incorporated by reference and are on file with the Department. For purposes of applying the incorporated sections of CCR, "California" means "Arizona," and "Air Resources Board (ARB)" or "California Air Resources Board (CARB)" means the Arizona Department of Environmental Quality (ADEQ) unless otherwise specified. Each manufacturer of new 2011 and subsequent model year passenger cars, light duty trucks, and medium duty vehicles shall comply with each applicable standard specified in CCR as incorporated by reference herein:

A. Section 1900: Definitions.

B. Section 1956.8(g) and (h): Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy Duty Engines and Vehicles.

C. Section 1960.1: Exhaust Emission Standards and Test Procedures - 1981 and through 2006 Model Passenger Cars, Light-Duty and Medium-Duty Vehicles.

D. Section 1961: Exhaust Emission Standards and Test Procedures - 2004 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.

E. Section 1961.1: Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2009 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.

F. Section 1962: Zero-Emission Vehicle Standards for 2005 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.

G. Section 1962.1: Electric Vehicle Charging Requirements.

H. Section 1965: Emission Control and Smog Index Labels - 1979 and Subsequent Model Year Vehicles.

I. Section 1968.2: Malfunction and Diagnostic System Requirements - 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles.

J. Section 1968.5: Enforcement of Malfunction and Diagnostic System Requirements for 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines.

K. Section 1976: Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions.

L. Section 1978: Standards and Test Procedures for Vehicle Refueling Emissions.

M. Section 2035: Purpose, Applicability and Definitions.

N. Section 2037: Defects Warranty Requirements for 1990 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and Motor Vehicle Engines Used in Such Vehicles.

O. Section 2038: Performance Warranty Requirements for 1990 and Subsequent Model Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles and Motor Vehicle Engines Used in Such.

P. Section 2039: Emission Control System Warranty Statement.

Q. Section 2040: Vehicle Owner Obligations.

R. Section 2046: Defective Catalyst.

S. Section 2109: New Vehicle Recall Provisions.

T. Section 2111: Applicability.

U. Section 2112: Definitions.

V. Appendix A to Article 2.1.

W. Section 2113: Initiation and Approval of Voluntary and Influenced Recalls.

X. Section 2114: Voluntary and Influenced Recall Plans.

Z. Section 2115: Eligibility for Repair.

AA. Section 2116: Repair Label.

BB. Section 2117: Proof of Correction Certificate.

CC. Section 2118: Notification.

DD. Section 2119: Record keeping and Reporting Requirements.

EE. Section 2120: Other Requirements Not Waived.

FF. Section 2122: General Provisions.

GG. Section 2123: Initiation and Notification of Ordered Emission-Related Recalls.

HH. Section 2124: Availability of Public Hearing.

II. Section 2125: Ordered Recall Plan.

JJ. Section 2126: Approval and Implementation of Recall Plan.

KK. Section 2127: Notification of Owners.

LL. Section 2128: Repair Label.

MM. Section 2129: Proof of Correction Certificate.

NN. Section 2130: Capture Rates and Alternative Measures.

OO. Section 2131: Preliminary Tests.

PP. Section 2132: Communication with Repair Personnel.

QQ. Section 2133: Record keeping and Reporting Requirements.

RR. Section 2135: Extension of Time.

SS. Section 2141: General Provisions.

TT. Section 2142: Alternative Procedures.

UU. Section 2143: Failure Levels Triggering Recall.

VV. Section 2144: Emission Warranty Information Report.

WW. Section 2145: Field Information Report.

XX. Section 2146: Emissions Information Report.

YY. Section 2147: Demonstration of Compliance with Emission Standards.

ZZ. Section 2148: Evaluation of Need for Recall.

AAA. Section 2149: Notification of Subsequent Action.

BBB. Section 2235: Requirements.

R18-2-1804. Fleet Average Non-Methane Organic Gas (NMOG) Exhaust Emission Requirements, Reporting, and Compliance.

A. Fleet Average Requirement. Beginning in model year 2011, each motor vehicle manufacturer's NMOG fleet average emissions from passenger cars, light duty trucks and medium duty vehicles delivered for sale in Arizona shall not exceed the Fleet Average NMOG Exhaust Emission Requirement in CCR § 1961. The Department shall determine compliance based on the number of vehicles, subject to this Article, delivered for sale in the State of Arizona.

B. Fleet Average NMOG exhaust emission credits and debits. Beginning model year 2011, each vehicle manufacturer may accrue NMOG emission credits and debits and use credits in accordance with the procedures in California Code of Regulations, Title 13, section 1961. Debits

and credits accrued and used shall be based on the number of vehicles, subject to this Article, produced and delivered for sale by each manufacturer in Arizona.

C. Reporting. Beginning model year 2011, each manufacturer shall submit to the Department by March 1 a report that follows the procedures and format in CCR § 1961. Each manufacturer shall include in the report:

1. Pre-model year data that projects the fleet average NMOG exhaust emissions for vehicles expected to be delivered for sale in Arizona, and
2. End-of-model year data that calculates the fleet average NMOG exhaust emissions for the model year just ended.

D. Each manufacturer submitting a report under subsection (C) shall follow the report procedures in CCR § 1961 and shall employ the same format that the manufacturer uses to report the information required by subsection (C) to the California Air Resources Board.

E. Compliance with fleet average NMOG requirements. Beginning model year 2013, if a report submitted by the manufacturer under subsection (C)(2) shows that the manufacturer has not complied with the fleet average emission standard, the manufacturer shall submit to the Department a Fleet Average Remediation Report within 60 days. In the Fleet Average Remediation Report, the manufacturer shall:

1. Describe how the manufacturer intends to equalize any accrued debits, as required in CCR § 1961;
2. Identify all vehicle models delivered for sale in Arizona, their corresponding certification standards, and the percentage of each model delivered for sale in Arizona and California in relation to total fleet sales in the respective state; and
3. Describe how the manufacturer plans to achieve compliance with the fleet average in future model years.

F. For model years 2010 through 2012, manufacturers shall submit the Fleet Average Remediation Report, if needed, to the Department by March 1, 2013. If debits are accrued in all three years, the manufacturer shall equalize one year of debits by the end of the 2013 model year, and the remaining two years of debits by the end of the 2014 model year.

R18-2-1805. Fleet Average Greenhouse Gas Exhaust Emission Requirements, Reporting and Compliance

A. Beginning in the GHG model year, each manufacturer shall comply with fleet average greenhouse gas exhaust mass emission requirements for passenger car, light duty truck, medium duty passenger vehicle weight classes, and other requirements of CCR § 1961.1.

B. Greenhouse gas emission credits and debits. Each manufacturer may accrue greenhouse gas credits and debits and use credits in accordance with the procedures in California Code of Regulations, Title 13, section 1961.1. Debits and credits accrued and used shall be based on the number of vehicles, subject to this Article, produced and delivered for sale by each manufacturer in Arizona.

C. Optional alternative compliance with greenhouse gas emission standards. Greenhouse gas vehicle test groups that are certified under CCR § 1961.1(a)(1)(B)2.a. in the State of California may receive equivalent credit, according to CCR § 1961.1(a)(1)(B)2.a, if:

1. The vehicle test group is delivered for sale and use in the State of Arizona, and
2. The manufacturer of the vehicle test group submits to the Department the information required by CCR § 1961.1(a)(1)(B)2.a.i.

D. Reporting on greenhouse gas requirements. Beginning March 1 of the GHG model year, each manufacturer shall submit a report to the Department that includes:

1. Pre-model year data that projects the fleet average greenhouse gas emissions for vehicles expected to be delivered for sale in Arizona and
2. End-of-model year data that calculates the fleet average greenhouse gas emissions for the model year just ended.

E. Each manufacturer submitting a report under subsection (D) shall include in the report the number of greenhouse gas vehicle test groups, delineated by model type, certified under CCR § 1961.1. Each manufacturer shall follow the report procedures in CCR § 1961.1 and employ the same format used to report the information required by subsection (D) to the California Air Resources Board.

F. Compliance with fleet average greenhouse gas requirements. Beginning in the GHG model year, if the report submitted by the manufacturer under subsection (D)(2) shows that the manufacturer has not complied with the fleet average emission standards, the manufacturer shall submit to the Department a Fleet Average Remediation Report within 60 days. In the Fleet Average Remediation Report, each manufacturer shall:

1. Describe how the manufacturer intends to equalize any accrued debits, as required in CCR § 1961.1;
2. Identify all vehicle models delivered for sale in Arizona, their corresponding certification standards, and the percentage of each model delivered for sale in Arizona and California in relation to total fleet sales in the respective state; and
3. Describe how the manufacturer plans to achieve compliance with the fleet average in future model years.

G. Adoption of this section is conditioned, and shall take effect immediately, on EPA's approval of a waiver for CCR § 1961.1 under section 209(b) of the Clean Air Act or on any judicial decision or change to federal law that has the effect of authorizing states to adopt the GHG standards in CCR § 1961.1.

R18-2-1806. ZEV Sales Requirement

A. Beginning model year 2011, each manufacturer shall comply with the ZEV sales requirement in CCR § 1962, including early credit and banking provisions.

B. An intermediate volume or large volume manufacturer of ZEVs, ATPZEVs and PZEVs may use vehicle equivalent credits according to CCR § 1962, to offset the ZEV Sales Requirement of subsection (A).

C. The provisions of CCR § 1962(d)(5)(D) regarding "Counting a Type III ZEV Placed in a Section 177 State" shall not end with the 2012 model year, but shall continue in Arizona throughout the duration of the alternate compliance path specified in CCR § 1962(b)(2)(B), except that this subsection shall not apply three years after the Director finds the following conditions are met:

1. The number of Type III ZEVs required to meet the minimum floor requirements in CCR § 1962(b)(2)(B)1 between the years 2013 and 2018 is proportioned among all states that have adopted California's vehicle emission standards; and
2. Arizona's hydrogen refueling infrastructure is adequate to accommodate the number of Type III ZEVs needed to meet the minimum floor requirements of CCR § 1962(b)(2)(B)1 between 2013 and 2018.

R18-2-1807. ZEV Credit Bank and Reporting

A. Beginning model year 2011, the Department shall create and operate a Zero-Emission Vehicle Credit Bank.

B. Beginning model year 2011, each intermediate volume and large volume manufacturer of ZEVs, ATPZEVs and PZEVs shall open an account in the ZEV credit bank by January 1, 2011, except that to generate and deposit credits for vehicles delivered for sale in Arizona during the 1999 through 2008 model years, a manufacturer shall:

1. Open an account with the ZEV Credit Bank, and
2. Submit an appropriate Notice of Generation to the Department by September 1, 2009.

C. Beginning in model year 2011, except as provided in subsection (B) for model years 1999 through 2008, each manufacturer shall submit to the Department a Notice of Credit Generation,

or Notice of Credit Transfer to or from another manufacturer, by September 1 following the close of the model year in which the qualifying vehicle was produced and delivered for sale in Arizona.

D. To open an account with the ZEV credit bank, the manufacturer shall submit to the Department an account application form containing the following information:

1. The manufacturer's name;
2. The manufacturer's mailing address;
3. The manufacturer's telephone number;
4. Type of business (if applicable);
5. The authorized representative's name, title, phone number, fax number and email address; and
6. The authorized representative's signature.

E. When the Department receives a complete account application, the Department shall issue a unique identifier for the account and notify the account applicant of the identifier.

F. To deposit credits into the ZEV Credit Bank, each manufacturer shall submit a Notice of Credit Generation to the Department on a form provided by the Department.

1. The Notice of Credit Generation for ZEVs delivered for sale in Arizona shall include:
    a. The manufacturer's ZEV Credit Bank account identifier;
    b. The model year of the vehicle qualifying for credit;
    c. The CARB Executive Order number;
    d. The ZEV Tier type (NEV, 0, I, II, III for California, III for Section 177 states);
    e. The vehicle identification number; and
    f. The date the vehicle was delivered for sale in Arizona.
2. The Notice of Credit Generation for ZEVs placed in service in Arizona shall include:
    a. All information listed under subsection (D)(1);
    b. The date the vehicle was placed in service; and
    c. Whether the vehicle was placed in service with an option to purchase or lease the vehicle;
3. The Notice of Credit Generation For ATPZEVs and PZEVs delivered for sale in Arizona shall include:
    a. The vehicle certification class (ATPZEV or PZEV);
    b. The manufacturer's ZEV Credit Bank account identification;
    c. The model year of the vehicles;
    d. The date the vehicle was delivered for sale in Arizona;
    e. For ATPZEVs, the federal test group;

f. The CARB executive order number; and

g. The number of vehicles delivered.

G. The number of the credits generated and deposited for each qualifying vehicle shall be the number of qualifying vehicles multiplied by the applicable multiplier set forth in Title 13 of the California Code of Regulations, Section 1962, except that the multiplier applied to vehicles produced and delivered for sale in Arizona from January 1, 1999, to January 13, 2004, shall be the highest applicable multiplier used by CARB for the period January 1, 1999, to January 13, 2004.

H. A vehicle equivalent credit does not constitute or convey a property right.

I. A manufacturer with an account in the ZEV Credit Bank may acquire credits from another manufacturer with an account in the ZEV Credit Bank; however, if the credits are to be used for future compliance with the ZEV sales requirement in CCR § 1962, both parties to the transaction shall certify the transaction and record it in the ZEV Credit Bank.

J. For each acquisition of credits transferred to or from another manufacturer, each manufacturer shall submit a Notice of Credit Transfer to the Department on a form provided by the Department that includes:

1. The date of the credit transfer;
2. The model year the credits were generated;
3. The type of vehicle (NEV, ZEV type, ATPZEV or PZEV); and
4. The number of credits in grams/mile NMOG.

K. A manufacturer may deposit into its account in the ZEV Credit Bank a number of credits equal to its California credit balance at the beginning of the 2011 model year. The manufacturer shall multiply the transferred credit balance by the number of new motor vehicles registered in Arizona, and divide by the number of new motor vehicles registered in California. The proportion of new motor vehicles in Arizona and California shall be determined by the average number of vehicles registered in model years 2005 through 2007, or by the average number of vehicles registered in model year 2011. The manufacturer may deposit the credits only after all credit obligations in California for model years 2010 and earlier have been satisfied.

L. The Department shall verify all credits and, if discrepancies are found, shall notify the manufacturer and adjust the account. The Department may audit an account at any time.

M. Each manufacturer with a ZEV Credit Bank account shall report to the Department the following information:

1. By May 1, 2011, the total number of PC and LDT1 vehicles produced and delivered for sale in Arizona and California for the 2005 through 2007 model years; or

2. By May 1, 2011, the total projected number of PC and LDT1 vehicles to be produced and delivered for sale in Arizona and California during model year 2011 and, by March 1, 2012, the actual number of 2011 model year PC and LDT1 vehicles produced and delivered for sale in Arizona and California; and

3. By May 1, 2011, the total number of banked California credits after all 2010 model year and earlier obligations have been met.

N. A manufacturer electing to deposit credits under subsection (K), shall offer for sale in Arizona in model years 2011 through 2013 any PZEV, ATPZEV or ZEV, except Type III ZEVs, that it offers for sale in California during the same period.

R18-2-1808. Additional Reporting Requirements

A. For each engine family to be sold in the State of Arizona, within thirty days of the Department's request, a manufacturer shall submit to the Department one copy of the California Executive Order and one copy of the Certificate of Conformity for certification of new motor vehicles. If the reports are available electronically, the manufacturer may send them in an electronic format.

B. Except as provided in subsection (C), upon request, each manufacturer shall report to the Department the vehicle identification numbers (VIN) and the California or federal vehicle emission category of each passenger car, light duty truck, and medium duty passenger vehicle delivered for sale in any of the following states: Arizona, California, Colorado, Nevada, New Mexico, and Utah.

C. Subsection (B) shall not apply during any period that vehicle titling or registration is effectively denied to passenger cars, light duty trucks, and medium duty passenger vehicles in Arizona that do not comply with the requirements of this Article.

D. The Department may require any vehicle manufacturer to submit any documentation the Department deems necessary for the administration and enforcement of this Article, including all certification materials submitted to CARB.

E. Dealers shall report to the Department the sale of each previously-titled light-duty and medium-duty motor vehicle subject to this Article. Each dealer shall submit the report in the manner the Department prescribes, and shall include:

1. The dealer's name and address;

2. Vehicle description including make and model year;

3. The vehicle identification number;

4. Date of sale;

5. The California or federal emission category to which the vehicle is certified; and

6. Evidence of any applicable exemption.

R18-2-1809. Warranty Requirements

A. Beginning model year 2011 for all vehicles subject to this Article, each manufacturer shall provide a warranty to the ultimate purchaser and each subsequent purchaser that complies with the requirements in CCR §§ 2035 through 2038, 2040 and 2046.

B. The 15-year or 150,000-mile extended warranty specified in CCR § 1962(c)(2)(D) for PZEVs is not included as a requirement of this rule or of R18-2-1811, provided that PZEVs delivered for sale to Arizona are equipped with the same quality components as PZEVs supplied to areas where the full 15-year or 150,000-mile warranty remains in effect. This section does not amend the requirements of CCR § 1962(c)(2)(D) that indicate the warranty period for a zero emission energy storage device used for traction power will be 10 years.

C. Beginning model year 2011, each manufacturer shall include the emission control system warranty statement, for all vehicles subject to this Article, that complies with the requirements in CCR § 2039. Manufacturers may modify this statement as necessary to inform Arizona vehicle owners of the warranty's applicability. The manufacturer shall provide a telephone number that Arizona consumers can use to obtain warranty information.

D. A manufacturer shall submit Failure of Emission-Related Components reports for vehicles subject to this rule, as defined in CCR § 2144, upon the Department's request. Manufacturers may submit copies of the Failure of Emission-Related Components reports that are submitted to the California Air Resources Board instead of submitting reports for vehicles subject to this Article.

R18-2-1810. Recalls

A. The Department shall consider any order issued or enforcement action taken by CARB that results in the recall of any vehicle under CCR §§ 2109-2135, to be prima facie evidence of noncompliance for applicable vehicles registered in Arizona. If the manufacturer can demonstrate that the order or action is not applicable to vehicles registered in Arizona, the Department shall not pursue a recall of vehicles registered in Arizona.

B. Any emission-related recall campaign initiated by any manufacturer under CCR §§ 2113-2121 shall extend to all applicable vehicles registered in Arizona. If the manufacturer can demonstrate that the recall campaign is not applicable to vehicles registered in Arizona, the campaign shall not apply in Arizona.

C. For vehicles subject to an order of enforcement action under subsection (A), each manufacturer shall send to owners of vehicles registered in the State of Arizona a notice that complies with the

requirements in CCR § 2118 or 2127. The manufacturer shall provide a telephone number that Arizona consumers can use to obtain information about any recall that affects Arizona vehicles.

R18-2-1811. Inspections and Information Requests

A. The Department may inspect new and used motor vehicles and related records to determine compliance with the requirements of this Article. Department inspections shall occur during regular business hours and on any premises owned, operated or used by any dealer or rental car agency for the purposes of determining compliance with this Article.

B. The Department may require any vehicle dealer or rental car agency to submit any documentation the Department deems necessary to the effective administration and enforcement of this division. The Department shall not require creation of new records.

R18-2-1812. Sales by Registered Dealers

A new vehicle subject to this Article may be sold to an ultimate purchaser only by a dealer licensed by the Arizona Department of Transportation as a new motor vehicle dealer. This section does not apply to a sale from one retail consumer, as defined in A.R.S. § 28-4301, to another retail consumer.

R18-2-1813. Enforcement

A. Each vehicle that fails to comply with the standards established by this Article shall constitute a distinct violation for purposes of A.R.S. § 49-463.

B. When a manufacturer fails to comply with section R18-2-1804, the number of out-of-compliance vehicles shall be calculated in accordance with CCR § 1961(c)(3)(A).

C. When a manufacturer fails to comply with section R18-2-1805, the number of out-of-compliance vehicles shall be calculated in accordance with CCR § 1961.1(b)(3)(A).

D. When a manufacturer fails to comply with this section R18-2-1807, the number of out-of-compliance vehicles shall be calculated in accordance with CCR § 1962(g)(8).